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Modification of bitumen binder by the liquid products of wood fast pyrolysis

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Abstract

© 2018 Informa UK Limited, trading as Taylor & Francis Group The physical and chemical properties of fast pyrolysis products and the composite binder were studied. Samples of the composite binder with additions of pyrolysis oil (PO) and pyrolytic lignin (PL) were obtained, and their properties were investigated. The results from binder analysis show that PO can be used as a component for the road binder in content up to 1%; and PL in content up to 10%. A significant reproducible volume increase was detected at a temperature range of 100–140°C in the composite binder with PL compared to initial binder. The volume increase can decrease binder consumption by 4 times. Samples of asphalt concrete made with the composite binder were obtained, their properties were studied. The results from asphalt concrete analysis show that PL can be used in content up to 5%.

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Keywords

binder, bitumen, pyrolysis, pyrolysis oil, pyrolytic lignin